

GEO-CAPE Coastal Ecosystem Dynamics Imager (COEDI) Instrument Design

Completed Technology Project (2012 - 2013)



Project Introduction

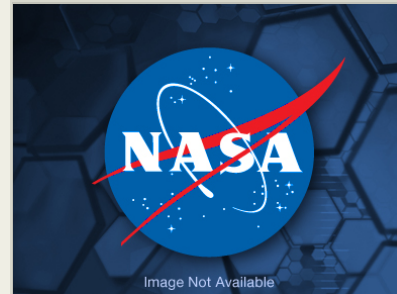
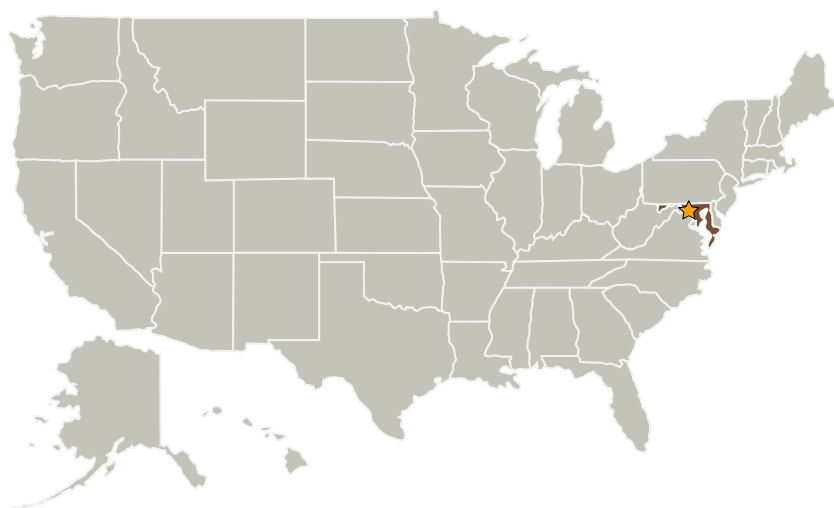
The primary goal of this study is to build a breadboard instrument and prove the functionality of the optical-mechanical assembly for the Coastal Ecosystem Dynamics Imager (COEDI). An instrument design must be developed that meets the science requirements within a size, mass and cost package commensurate with anticipated mission funding. The GSFC team is developing a hyperspectral instrument design for coastal ocean color retrievals, which allows for retrieval of atmospheric constituents necessary to perform atmospheric corrections for ocean color product generation. This minimizes temporal and spatial uncertainties in data products caused by applying atmospheric products from other satellite sensors that are not coincident in time or at a similar spatial resolution. The main advantage afforded by a geostationary platform is the capability to image the same regions multiple times per day. This capability is necessary to study coastal oceans where the physical, biological and chemical processes react on short time scales from seconds to hours to a few days.

We will verify spectrometer performance in the lab using off-the-shelf optics, existing sources and integrating spheres through test measurements of image quality, dispersion, slit curvature, and optical throughput. The design concept will be further refined based on optical and mechanical modeling analysis.

Anticipated Benefits

N/A

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland

Primary U.S. Work Locations
Maryland

Organizational Responsibility

Responsible Mission Directorate:

Mission Support Directorate (MSD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Center Independent Research & Development: GSFC IRAD

Project Management

Program Manager:

Peter M Hughes

Project Manager:

Matthew J McGill

Principal Investigator:

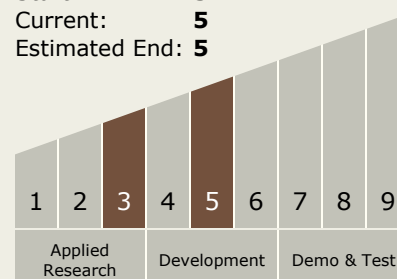
Antonio Mannino

Technology Maturity (TRL)

Start: 3

Current: 5

Estimated End: 5



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Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.1 Remote Sensing Instruments/Sensors